

CLAIMS

1. A synthetic resin emulsion comprising polymer particles having a core/shell structure, wherein

said shell comprises a copolymer of an unsaturated carboxylic acid and a hydrophilic comonomer,

said core comprises a copolymer of a monomer mixture comprising a radically polymerizable main monomer and a radically polymerizable functional monomer, and said monomers constituting the monomer mixture are selected so that the glass transition point (T<sub>g</sub>) of the copolymer produced by polymerization is -20°C or below, and

said synthetic resin emulsion has been produced by adding said monomer mixture for core formation and a pH adjustor to an aqueous copolymer solution, which has not been neutralized, produced by polymerizing the unsaturated carboxylic acid and the hydrophilic comonomer in an aqueous medium, and allowing a polymerization reaction to proceed.

2. The synthetic resin emulsion according to claim 1, for use as a main component of an easily water-swellaable pressure-sensitive adhesive composition.

3. The synthetic resin emulsion according to claim 1 or 2, wherein the polymerization reaction of the monomer mixture conducted in the aqueous copolymer solution is an emulsion polymerization reaction.

4. The synthetic resin emulsion according to any one of claims 1 to 3, wherein said monomer mixture is added as an emulsion monomer solution to the aqueous polymer solution.

5. The synthetic resin emulsion according to any one of claims 1 to 4, which has a pH value of 7 or less.

6. □ The synthetic resin emulsion according to any one of claims 1 to 5, wherein said unsaturated carboxylic acid is acrylic acid and the hydrophilic comonomer is (meth)acrylic acid hydroxy ester.

7. The synthetic resin emulsion according to any one of claims 1 to 6, wherein said pH adjustor is at least one member selected from the group consisting of alkali metal salts, ammonia, and amine.

8. An easily water-swellaable pressure-sensitive adhesive composition comprising, as a main component, the synthetic resin emulsion according to any one of claims 1 to 7.

9. A pressure-sensitive adhesive sheet comprising a substrate sheet and the easily water-swellaable pressure-sensitive adhesive composition according to claim 8 coated onto the surface of the substrate sheet.

10. A process for producing a synthetic resin emulsion comprising polymer particles having a core/shell structure, said shell comprising a copolymer of an unsaturated carboxylic acid and a hydrophilic comonomer, said core comprising a copolymer of a monomer mixture comprising a radically polymerizable main monomer and a radically polymerizable functional monomer, said process comprising the steps of:

providing an unsaturated carboxylic acid and a hydrophilic comonomer;

polymerizing them in an aqueous medium to prepare an aqueous copolymer solution; and

adding said monomer mixture for core formation and a pH adjustor to the aqueous copolymer solution without the neutralization of the aqueous copolymer solution, allowing an emulsion polymerization reaction to proceed to prepare a synthetic resin emulsion, wherein said monomer mixture comprising monomers selected so that the glass transition point ( $T_g$ ) of the copolymer produced by polymerization is  $-20^{\circ}\text{C}$  or below.

11. The process for producing a synthetic resin emulsion

according to claim 10, wherein, in adding the monomer mixture to the aqueous polymer solution, the monomer mixture is added as an emulsion monomer solution prepared with the aid of an emulsifier.

12. A bonding method comprising the step of bonding a substrate and a adherend of interest with the aid of the synthetic resin emulsion according to any one of claims 1 to 7.

13. A method for bonding a pressure-sensitive adhesive sheet, comprising the steps of:

coating the easily water-swellaable pressure-sensitive adhesive composition according to claim 8 onto the surface of a substrate sheet to form the pressure-sensitive adhesive sheet; and

applying the pressure-sensitive adhesive sheet to a adherend of interest.

14. A method for separating a pressure-sensitive adhesive sheet, comprising the steps of:

applying water to a pressure-sensitive adhesive composition-coated part in the pressure-sensitive adhesive sheet according to claim 9 applied to a adherend of interest to swell the pressure-sensitive adhesive composition; and

separating the pressure-sensitive adhesive sheet, in which the pressure-sensitive adhesive composition has been swollen, from the adherend.

15. Use of the synthetic resin emulsion according to any one of claims 1 to 7, as a pressure-sensitive adhesive.